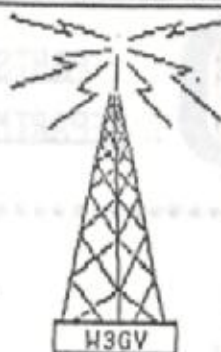


QUA RAE



The Official Journal of The Radio Association of Erie

MAY 1990

MAY EDITOR
W3DYY CLARK

R.A.E. Inc
PO Box 844
Erie PA 16512

NON-PROFIT
ORGANIZATION
U.S. POSTAGE
PAID

ERIE PA
PERMIT NO 266

OFFICERS:

PRESIDENT	Gary Alberstadt	KA3FZO
V. PRESIDENT	Tony Zona	WB3KGT
SECRETARY	Ken Teleis	KZ3E
TREASURER	Matt Rizzo	KA3PEJ

DIRECTORS:

Jerry Strohmeier	N3GDS	(3)
John J. Duda	K3ED	(3)
Bob Schwimmer Ch'mn	N3FAW	(2)
Joe Pearo	WB2ICS	(2)
Kevin McKenna	WB3KKT	(1)
Joe Seppala	KC3LV	(1)
George Bablak	W3ZQS	(1)

Robert Schwimmer
129 East Arlington Rd.
Erie PA 16509
N3FAW F

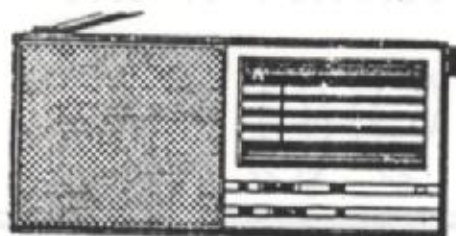
WARREN RADIO

PARTS
DEPARTMENT

1315 PEACH STREET
ERIE, PENNSYLVANIA
PHONE 454-5285

MON-FRI 8:30 - 5:00
SAT. 9:00 - 5:00
CLOSED SUNDAY

SANGEAN
A World of Listening™



Frequencies
For SG-792

FM : 87.5 - 108MHz for
MW : 522 - 1620KHz
SW : SW1 2.3 - 5.2 MHz
SW2-7 (Band Spread)
SW2 5.85 - 6.20 MHz 49M
SW3 7.10 - 7.30 MHz 41M
SW4 9.65 - 9.90 MHz 31M
SW5 11.45 - 11.95 MHz 23M
SW6 15.10 - 15.55 MHz 19M
SW7 17.45 - 18.06 MHz 16M

MODEL SG-792 SW PORTABLE!
LIST \$79.95
RETAIL \$49.95

YOUR COST-- \$39.95!!

WE ALSO STOCK A COMPLETE
LINE OF DIPOLES, TRAPS, &
DIPOLE SHORTENERS.

Everything in Amateur Radio



VHF COMMUNICATIONS

280 Tiffany Ave.

Jamestown, New York 14701

PH. (716) 664-6345

Mon- Fri 8:00- 5:30

May Quarae

From The Chairman...

* CHRISTOPHER ZIMMERMAN *

* The Radio Association of Erie extends heartfelt sympathy to *
* the family of Chris Zimmerman, late President and General Manager *
* of WQLN Public Broadcasting. *
* Chris was a good friend of the Erie Radio Amateur Service *
* and will be sadly missed in the amateur community, as well as *
* at WQLN Public Broadcasting. *
* The times we spent with Chris proved to us he cared about *
* the Erie Community and also about our activities in Amateur *
* Radio. We appreciate the courtesies he showed to the amateurs in *
* our affiliation at WQLN and in helping to perpetuate the mutual *
* cooperation between WQLN Public Broadcasting and the RAE. WQLN *
* and their people perform incredible amounts of service to the *
* people in their broadcast area. *
* I was particularly moved the last time I saw Chris on TV during *
* the supplementary fund raising period, when they had to fill in *
* to raise more funds due to a shortfall in the prior fund drive. *
* It was distressing to watch and empathize with Chris and the *
* folks who must beg for funds to carry on such an excellent public *
* service broadcasting facility. That has to be a very depressing *
* part of the WQLN staff activities. I think that having to come *
* back again for more money after the normal drive was particularly *
* depressing. *
* In lieu of flowers, Mrs. Zimmerman asked that donations be made *
* to WQLN in Chris's memory. Better yet, if you aren't already a *
* member, call up the station and join (and mention his name). *
* ...73, Bob - N3FAW *

May 29, 1990

Hello again from Fairview. Well another month has come and gone. Boy is the year going fast! I can't believe it.

First I would like to welcome our three newest "REPEATER" club members Mike, Milli and Romeo.

Mike is kinda off the wall in his own special way. He is young at heart but set in his old fashioned ways. Very jealous, very demanding, and a real clock watcher. His only goal in life is to find a barrel connector and link with Milli.

Milli on the other hand is a real trip. Very flirtatious, sleazy, and vulgar. Milli has only one thing on her mind and thats to link with Romeo on 64. She thinks he's cool and she likes the way he gets vulgar when he makes a CW error. She actually left snail tracks across the repeater cabinet from a leaky gel cell when she heard Romeo acknowledge KC3VD the other day.

Romeo is alot like his creators. Good hearted, lively, and an all round good guy. He likes to play, yet he knows his limits.

Ya better watch out Milli, I heard from a good source (KA3MJN), that " Romeo likes to have his tubes cleaned and dusted once a day ", and Mike told me " you can only cool his".

Well I guess we will see what happens next month when the link receiver is back on line.

Tony, WB3KGT told me that the guest speaker at the June meeting will be a Mr. Miller who is a VP for NFG. He will be there to dodge tomatos and answer questions about the new phone links with our gas meters. This will probably be a real interesting meeting.

Speaking of WB3KGT, Tony is the only person I know that would go to the snake and alligator infested streets of the south during the flood and tornado season. I watched the weather channel this morning and thought I saw a red LeBarron Convertible floating down the road with some guy with a black cowboy hat with SKYWARN stickers on it, and an HT behind the wheel. I thought it was Tony but it was raining too hard to tell. I know he will say no but I still say it was him.

RADIO ASSOCIATION OF ERIE

NAME - _____ CALL SIGN - _____

ADDRESS - _____

PHONE - _____ (Home) _____ (Work)

DATE OF BIRTH - ____/____/____

RADIO and / or ELECTRONIC KNOWLEDGE - _____

OUTSIDE HOBBIES OR INTERESTS - _____

FAMILY MEMBERS - _____

RADIO CAPABILITIES - HF BASE ____; HF MOBILE ____;
2MT. MOBILE ____; 2MT. BASE ____; 2MT. HT ____;
UHF MOBILE ____; UHF BASE ____; UHF HT ____;
OTHER - _____
(please specify)

GENERAL COMMENTS - _____

Thank you for your time and for your prompt return to me.

Handwritten signature KASR20

Field Days are almost upon us. June 23 and 24th are the big days this year. We are still in need of your skills to help us be a success this year. We need operators and gear if you want to bring it, we will need help with setup Friday night and help with the picnic Saturday.

Special thanks to : Tom - KA3MJN, Ron - WB3DOM, Ken - KZ3E, Rich - N3DWP, Bob - KA3LSK, and Floyd - WA3LCO, for helping me get the TH6DXX, and the Boomer up on top of my tower the other day. All works well and final adjustments were made later that evening with Eric - N3HUM and Jack - K3TJM along with the rest of the gang on 10 meters. It was really great to have the whole group on HF with no harps, timers or complainers !

Glad to hear Bob - KA3LSK is feeling better after his case of sticker shock at Dayton. Soon he will be back to work and we will all save on our coffee bills ! By the way we heard that Bob became a mother on Mothers Day. The new arrival was a Kenwood 950 S, which he won in the drawing held by Ham Radio Magazine. Congratulations Bob !

We will be needing operators for the Edinboro Triathlon which will be held this month. Please mark June 16th, on your calendar as we will need many operators for the event. Also that weekend is the Horse Trials which also is in need of operators. Please contact either K3IVG - Joe at 866-5121 or N3HUM - Eric at 474-2120 and sign up now. Remember our club survives on the good will of others that we earn at these events by our participation.

Have you been wondering about all the new tones and weird things going on with the '61 machine ? Well rest assured there is nothing wrong. We are currently training new programmers for the controller because KZ3E is leaving soon and someone has to fill his shoes.

Please fill out the questionnaire we have included in this months Qua-Rae and return it to me as soon as possible so that we may compile a complete and up to date, information file on each member. They are not to pry just to help us, help you the member. Thanks for your help.

[Handwritten signature] KA3F20

FIELD DAYS EVENT

FEILD DAYS ARE SCHEDULED THE WEEKEND OF JUNE 23 AND 24 1990

WE ARE IN NEED OF OPERATORS AND SOME EQUIPMENT

SET-UP WILL TAKE PLACE FRIDAY EVENING AT 7:00 PM

EVENT WILL BE HELD AT ZUCK PARK ON W. GRANDVIEW

R.A.E. PICNIC WILL BE HELD AT THE SITE SATURDAY JUNE 23 FROM 2-6 pm

COME OUT AND OPERATE AND ENJOY THE FELLOWSHIP WITH US

THIS EVENT IS OPEN TO THE PUBLIC AND SHOULD BE ADVERTISED AS SUCH

PLEASE BRING A FREIND

CONTACT : WB3DOM - RON or KA3PMW - DAVE FOR INFORMATION

RADIO ASSOCIATION OF ERIE PICNIC

SATURDAY JUNE 23, 1990

TIME - 2:00 TILL 6:00 pm.

PLACE - ZUCK PARK LOCATED AT W. GRANDVIEW AND ZUCK ROAD

EACH FAMILY IS ASKED TO BRING A LARGE FAMILY SIZED TUREEN W/SPOON

FAMILIES ASKED TO BRING THEIR OWN PLACE SETTINGS AND UTENSILS

**THE R.A.E. WILL PROVIDE HAMBURGERS, HOT DOGS, & POP FOR MEMBERS
(non-member amateurs will be asked for a \$4.00 per family donation)**

RESERVATIONS WOULD BE GREATLY APPRECIATED SO WE CAN FIGURE THE COSTS

CONTACT KA3FZO - GARY ALBERSTADT AT 474-3736

>

MSG#151 05/25/90 15:03:28 FROM WB3DWL
TO N3DYY

**MAYMINUTES
RAE CLUB MEETING
MAY 3, 1990**

The meeting was opened at 7:33 PM by President Alberstadt. Scotty Forbes, W3STK, moved to accept the minutes from the previous meeting as printed in the Qua-RAE. Second by Floyd Titus, WA3LCO. Motion Carried.

The Board of Directors report was given by Bob Schwimmer, N3FAW. He announced that John Duda, K3ED, a Psychology Professor at Gannon University, has been appointed to fill a vacancy on the board. Joe Seppala, KC3LV, moved to accept the board report, second by Schwimmer. Motion Carried.

The Treasurer's Report was given by Tony Zona, WB3KGT, in the absence of Matt Rizzo. Burt, W3TPW moved to accept this report, second by Seppala. Motion Carried.

COMMITTEE REPORTS

PUBLIC SERVICE: Joe Ciano, K3IVG, announced the Edinboro Triathlon was coming up on June 16 and moved that the club provide communications for this event. Second by Schwimmer. Motion Carried.

VE-TEAM: Norma Vanderhoff, W3CG, announced that the exam session held on April 7 resulted in licensing 1 novice, 4 technicians, and 2 general class amateurs. The next VE session will be held on May 5 at the Villa Maria Campus of Gannon University.

FIELD DAY: Gary Alberstadt, KA3FZO, reported that this year's field day will be held at Zuck Park. Since Dave Alexander is unsure that he will be able to assist in the planning and operation of this event, Ron Seyboldt, WB3DOM, will be in charge.

BY-LAWS: Joe Seppala reported he has some papers for the committee to review. He will distribute them to the committee members after the meeting.

PROPERTY: Gene Rogowski reported the Argosy is available for loan.

QUA-RAE: Clark Coho, N3DYY, stated he needs material to be printed in the QUA-RAE to be submitted to him at least ten days prior to the club meeting, in order to meet his publication deadline.

HAMFEST: Floyd Titus, WA3LCO, reported all is flowing well for the hamfest planning. Tickets are now available for sale by club members and can be obtained by contacting Gary Alberstadt or Tom McClain, N3HPR.

ARES/SKYWARN: Joe Ciano stated we need 2-3 more people to fill key positions in the ARES/SKYWARN organization. He also reminded everyone to check into the weekly ARES/SKYWARN nets on Sunday Evenings at 9:30 pm on 146.01/61.

REPEATER: Tony Zona reported the repeater committee will meet on Monday, May 7, at 7:02 pm at the Red Cross building. We will discuss plans for locating the .82 repeater as well as various policies concerning repeater usage.

The .82 repeater is back on the air at the home of KA3FZO on Dutch Road in Fairview.

A list of each member's user codes for the repeater will be given to Chester, KB3P and Tony, WB3KGT, so that if someone forgets their code, they may contact either Chester, Tony, or Ken Teleis, KZ3E.

NEW BUSINESS: Don Kelly announced the Red Cross is having a raffle for the June 23 Fund Raiser. He encourages members of the RAE to purchase some tickets, or sell some for the Red Cross.

There being no further business, Joe Ciano moved that the meeting be adjourned, second by Ken Teleis. Meeting adjourned at 8:21 PM.

Respectfully Submitted,

Kenneth R. Teleis, KZ3E
Secretary

PUBLIC SERVICE

THE ABILITY OF RADIO AMATEURS TO HELP THE PUBLIC IN ACTIVITIES AND EMERGENCIES IS ONE BIG REASON AMATEUR RADIO HAS SURVIVED AND PROSPERED.

We have two big ones coming up the June 16 weekend. There will be lots of help needed from the ham radio community. Please inform either of the following if your services are available:

Joe Ciano K3IVG (814) 866-5121

Eric Zierenberg N3HUM (814) 474-2120

16th EDINBORO TRIATHALON

Sponsored by the General McLane Association

June 16 - 9AM thru midafternoon

.6 mile swim

23.6 mile bicycle sprint

6.0 mile run

Events start at Edinboro Canoe Club Beach on Route 6N between intersections of I79 and 99.

Eric Zierenberg N3HUM Net Control
Amateurs meet at 8AM at Donut Shop (on 6N near Perkins restaurant in Edinboro)
for instructions and maps.

HORSE TRIALS

Sponsors: Eric Hunt and Saddle Club

June 16-9am to 2pm

June 17-9am to noon

Qualifying running and jumping trials.

Events held in Franklin Township. At Exit #4 off I90, proceed South on Route 98 about 7 miles to a blinking light intersection at Farmers Tavern. Turn left (east) and continue about 1/2 mile or so to a farmhouse on the left.

Joe Ciano K3IVG Net Control
Amateurs meet in the farmyard at 8:30am
for jump station assignments.

VE REPORT

The May 5 Test Session at Villa Maria College resulted in 1 Novice, 2 Technicians, 2 General, 2 A. Extra and 5 partial upgrades. 17 exams were given to the 12 candidates present from Ohio, New York, and Pa. Locals who upgraded were Marjorie Kline KA3VTA of Linesville to Tech, Frank Winterger, no call, of Cranesville to General, and Stephen Walter WA3TBW of Spartansburg to Amateur Extra. The VE Team present were Chester Kanis KB3P, Henry Schultz KA3GXP, Michael Przepierski NO3E, Dick Waldinger NI3Q, Bert Van Houten W3TPW and Norma Vanderhoff W3CG. The next test session will be held on Saturday, June 2.

MOVING UP

Steve Walter WA3TBW - Steve was originally a SWL, and obtained his first license by attending radio classes conducted by the Presque Isle Radio Club in 1972. General and Advanced exams were taken at the FCC office in Buffalo, NY and Cleveland, OH. Along with the A. Extra license, he has opted for a 2 x 1 call, which is helpful in DX operating. His equipment is the Kenwood TS 520, Johnson transmatch, and automatic MFJ Keyer. Dipoles are used on 80 and 40 meters, and in country living, 2 rhombics complete his antenna system. He may be found on all bands, operating both CW and SSB.

His family consists of XYL Salena, 2 year old son Danny, and 7 year old daughter Janessa. Father Ralph is WA3UCI who lives in NorthEast.

Norma Vanderhoff W3CG

FOR SALE

Mosley 6 Element Tri Band Beam
Model CL 36-M
\$225

Call John Stager W3ZBF
(814) 899-5458

Loma Prieta Quake Unsettles Geophysicists

Nothing can stop the inevitable rending of rock that is an earthquake, but a little warning would be nice. Unfortunately, October's Loma Prieta earthquake was not that considerate. No one had an inkling that it would strike. Of course, there were signs that a large earthquake would some day break the 32-kilometer section of the San Andreas south of San Francisco, but "someday" could have been years or even decades away (*Science*, 18 August, p. 704). Of the short-term precursors, there were none.

Well, maybe one. There certainly were none of the conventional precursors, such as foreshocks, but, in hindsight, there was a curious series of fluctuations in the radio noise that pervades the atmosphere. Was this an unconventional short-term warning? Researchers wonder, and hope.

Antony Fraser-Smith and his colleagues in electrical engineering at Stanford University had no intention of getting into earthquake prediction when they set up their ultralow-frequency radio receiver just 7 kilometers from the eventual epicenter. It was just a convenient place to get away from San Francisco's radio-frequency pollution to study sun-related radio noise that could interfere with submarine communications.

But when they happened to check their data several weeks after the earthquake, they found something unusual in the 0.01 to 10-hertz frequency range. About 12 days before the earthquake, the radio background noise



RF oracle? Did this remote radio receiver "see" the Loma Prieta quake coming?

at all frequencies in that range went up. It dropped about 1 day ahead and then shot up to 30 times its previous level during the 3 hours before the earthquake. The Stanford group had seen nothing like these episodes in 2 years of monitoring.

Researchers in earthquake prediction are intrigued but cautious because of all the questions that remain. Are these radio anomalies connected to the earthquake? The juxtaposition of the third anomaly and the earthquake would suggest so. Would all earthquakes produce such precursors? How are they produced? And, most important, when will researchers get another chance to record them? Other sorts of cryptic anomalies have preceded earthquakes and not proved out, but researchers are still open to the possibility that radio waves might give them a view into deep-seated fault processes.

SCIENCE, VOL. 246

VACATIONING IN CANADA?

If you are planning a northerly trek this summer, remember that Canada and the United States share an *automatic* reciprocal operating agreement. This means that FCC licenses are valid in Canada without having to file a request for an operating permit with the Canadian Department of Communications (DOC). It is best to carry your original FCC license when entering Canada. Remember to sign your US call sign followed by the proper Canadian prefix. (example: KC1J/VE6).

Should you have difficulty getting your equipment through customs, referral to their customs Memoranda D2-1-1 (p 7) and D19-4-2 (p 4) will remind the officer that your FCC license is valid in Canada, and that your equipment may be imported as part of your personal baggage.

While operating in Canada you must stay within the limits of your FCC authorized frequencies. Canadian repeaters are listed in the *ARRL Repeater Directory*, available from your local Amateur Radio book distributor or from ARRL HQ.

Further information on reciprocal licensing may be obtained by sending a business size self-addressed stamped envelope to ARRL HQ, attention Regulatory Information Department.

<<< COULD THIS BE A PRECURSOR OF A NEW FRONTIER FOR AMATEUR RADIO???

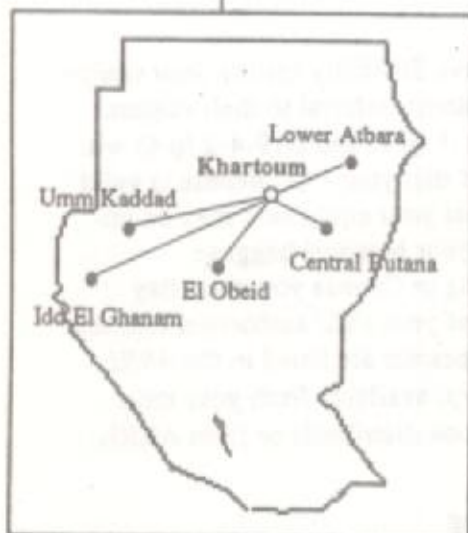
At 10 Hz (Note: Not Khz or Mhz) a halfwave dipole is about 8,864 miles long!!!

Oh well, the wire factories will be happy.

Packet Radio Opens Communication in Sudan

By Patricia Mantey
Photos by Mark Oppenheim

Reprinted with permission of VITA News (October 1989), 1815 N Lynn St, Suite 200, Arlington, VA 22209



Locations of Area Development Scheme offices

"I was at home, minding my own business, turned on the computer, logged onto the local packet radio BBS, and saw an interesting message about Sudan, a strange and wondrous sounding place that I wasn't 100 percent sure where it was located." This is how VITA volunteer Mark Oppenheim, KD6KQ, described becoming involved with VITA's packet-radio project in Sudan.

Mark Oppenheim, along with VITA volunteer David Henderson, N3EOY, spent six weeks during the past summer in Sudan as consultants for a VITA/UNDP packet-radio project. They installed a packet-radio network to connect the United Nations Development Program office in Khartoum with five field offices in rural Sudan, and trained local operators to run and maintain the radios.

VITA became involved in this project through a request from the UNDP program director in Sudan, Dr M Taghi Farver, to use packet radio to improve their project communication capabilities. The project staff were already using lap-top computers for many aspects of their work, but needed to advance communication beyond voice capabilities. "We were attracted by packet radio's potential for powerful, rapid communications and its ability to make our project more manageable," said Dr Farver. "It is the only viable means of communication in such a vast country where no alternatives exist."

The UNDP program promotes rural development through an Area Development Schemes Project (ADS). The ADS field offices operate at the village level in such areas as agricultural credit and cooperative support, agricultural extension, training workshops, a technology resource center, replication of solar pump technology to increase water supplies, and reforestation programs.

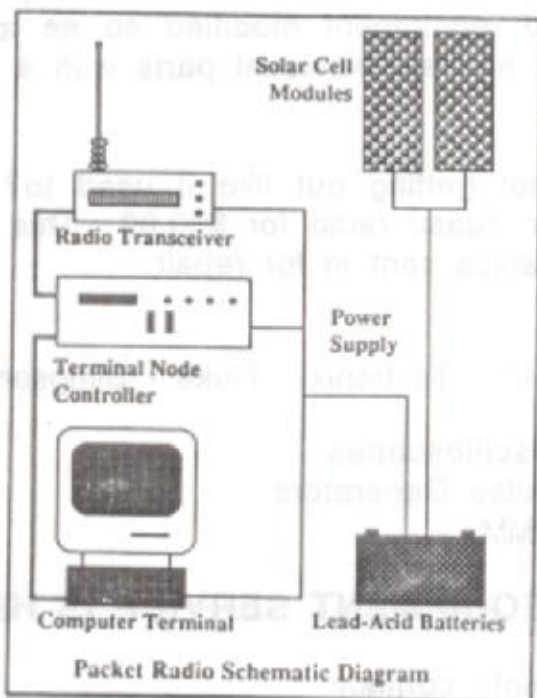
In the past, messages between offices were often hand carried long distances, sometimes through harsh desert conditions, and could take several days to reach their destination. Telex or radio messages could also be sent if such connections existed, but were often delayed because of unreliable power, or were communicated incorrectly because of audio problems or operator error.

"Each telex message that comes in needs to be re-typed by the radio operator—a time-consuming process," said Mr Oppenheim. "Packet radio does away with this time-consuming and error-producing step, and permits large volumes of data to be transmitted immediately to and from any remote site with 100 percent accuracy, in a form that computers at either end can use."

"Because messages are printed out from the computer, packet radio breaks through all of the boundaries of static, cheap radio speakers, etc.," continued Mr Oppenheim. "It eliminates the problems of tonal inflections and accents over a noisy sideband radio channel. In packet, no transmission is left to the imagination."

"Not only can they rapidly exchange administrative traffic, but they now have the ability to transmit computer binary files from spreadsheet and database programs instead of having to hand carry diskettes hundreds of miles," observed Mr Henderson.

Packet radio is used by the ADS offices to transmit field data, reports, administrative communication—functioning as an electronic mail system—and also for file transfers and technical and agricultural information exchanges. "The instant communication, and the rapid information and decision turnaround of the packet-radio system are a great contribution to staff morale," said Dr Farver. "Packet radio fulfills a need which we couldn't even dream of initially."



Both VITA volunteers Oppenheim and Henderson have been Amateur Radio operators and packet enthusiasts for many years. They began working together to plan their trip long in advance, even though one lives in California and the other in Pennsylvania. "Mark and I spent many hours planning this project. We exchanged planning lists using the VitaNet BBS communications system," said Mr Henderson. "A lot of consideration was given to the types of equipment and personal gear to take with us. It paid off, as we found that we were well prepared." The volunteers also communicated extensively with Gary Garriott, WA9FMQ, VITA's director of information technology during pretrip planning, and consulted often with Norm Sternberg, W2JUP.



Mokbuhi Hussein (front) and Mutassim Hasan Farah send the first packet radio message from Lower Atbara

Once in Sudan, they encountered a number of technical and logistical problems, but none was insurmountable. A manufacturing defect was discovered in the station antennas, but after consulting with the manufacturer, new parts were shipped, and their stay in Sudan had to be extended to complete the installation.

Towards the end of the project, an intensive two-day training session was conducted in Khartoum. Two technicians from each ADS field site team received hands-on instruction in the more advanced features of the packet system from the VITA volunteers to supplement the on-site training each had already received. The operators received more than 20 hours of training, and each spent many additional hours experimenting on their own.

Both volunteers acknowledged that the cooperation they received from the Sudan project staff was essential to their mission. "The UNDP/ADS personnel, headed by Dr Farver, were great," noted Mr Henderson. "Their desire to make this project a success made our job much easier, and we couldn't have succeeded without them."

According to Dr Farver, the UNDP project is also interested in a possible linkage to VITA's low-orbiting satellite, PACSAT, to enable them to tap technical databases outside of Sudan. When operational, PACSAT will permit communications among more than 500 packet-radio ground stations through the world. The PACSAT prototype is scheduled for launch in early 1990.

VITA has been involved in packet-radio projects in the Philippines, Jamaica, Ethiopia, Mozambique, Tanzania, and Lesotho, and is currently designing and installing packet-radio networks in several other developing countries as a step toward building a global packet radio network.

The potential applications for packet radio are numerous and include health, agriculture, education, scientific exchanges, business development, and disaster relief assistance. For more information about packet radio for humanitarian purposes in developing countries or for information on becoming a VITA volunteer, contact: Dr Gary Garriott, WA9FMQ, Director of Information Technology, VITA.



GE, FOR YEARS A LEADER IN THE COMMERCIAL COMMUNICATION FIELD, NOW PUTS ITS EXPERTISE TO WORK FOR THE AMATEUR RADIO COMMUNITY

KENWOOD

YEASU

GE Electronic Services now offers factory authorized service on Kenwood and Yeasu amateur radio equipment. Quality service and fast turnaround by a SERVICE ONLY ORGANIZATION, with a unique feature...FIXED PRICE SERVICE.

Fixed prices includes all labor and most parts. Exclusions to fixed pricing are: equipment that has been lightning damaged, equipment modified so as to interfere with diagnosis and repair, abused equipment and all individual parts with a unit value exceeding \$10.00.

Does your rig seem a little tired lately - not getting out like it used to? We will align and performance tune any Kenwood or Yeasu radio for \$60.00 This service is also performed at no additional cost on all radios sent in for repair.

GE also services electronic test equipment...HP - Tektronix - Fluke - Simpson - Etc.

Signal Generators
Function Generators
Spectrum Analyzers

Oscilloscopes
Pulse Generators
DMM's

THE NEW STANDARD IN AMATEUR EQUIPMENT SERVICE IS HERE!!!

To discuss your particular service requirements contact:

GARY FRISCH - WJ9G
GE ELECTRONIC SERVICES
1062 TOWER LANE
BENSENVILLE, IL 60106
(708) 595-4343
(708) 595-3675 FAX

NOTICE

This bulletin is not to be considered as an endorsement by RAE, nor is it a paid advertisement in the QUA-RAE. It is information which may be useful to some amateurs.

Verified by phone 5-29-90.
N3DYY Ed.

QUALITY . . . WITH A NAME YOU CAN TRUST

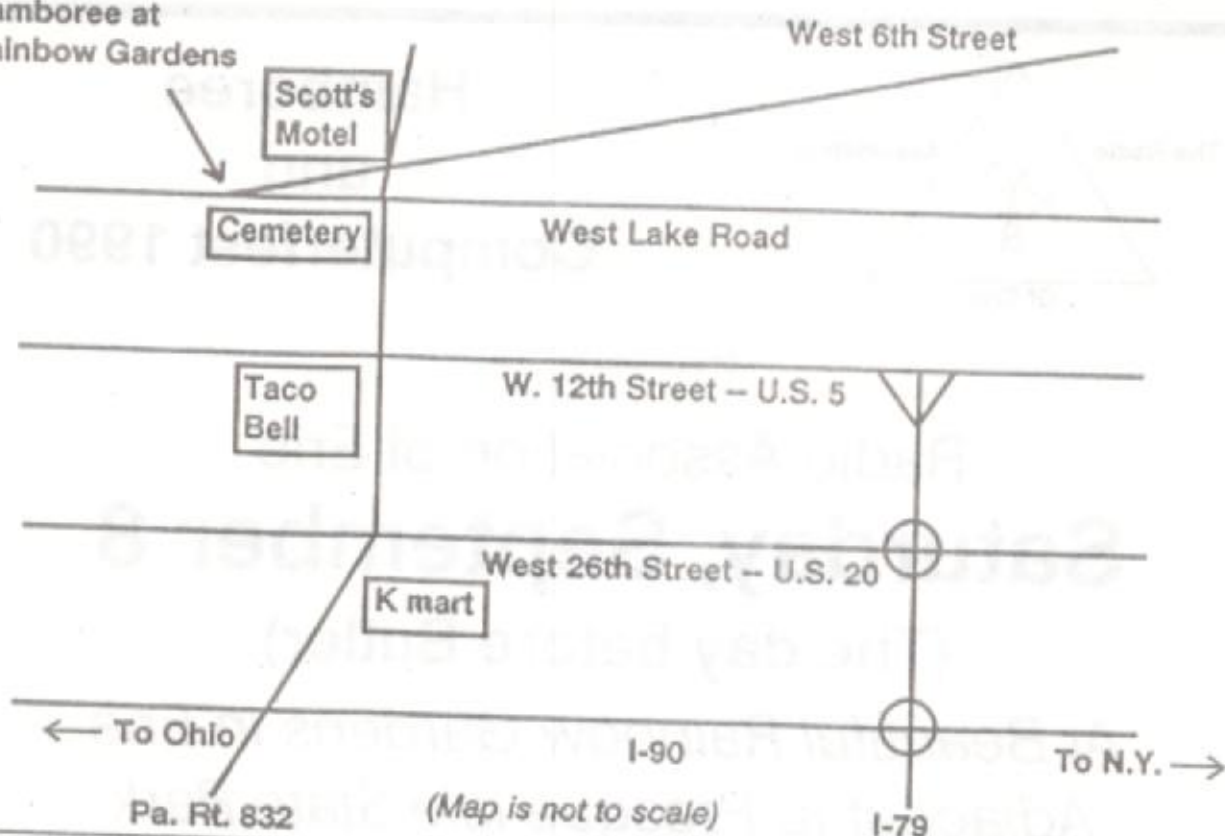


THE COMMUNICATOR
a monthly publication of
Radio Club, Inc

From
Bert Van Houten
W3TPW
5-3-90

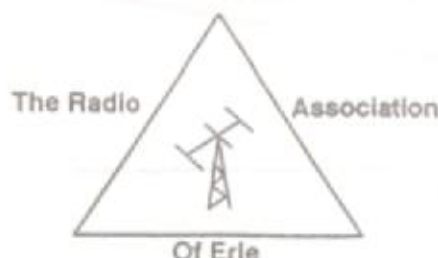
ARTHUR E. MILIGAN
2120 W. CREST DRIVE
ENGLEWOOD, FL 34223

Entrance to
Hamboree at
Rainbow Gardens



HAMFESTS

June 3 Butler PA Breezeshooters
 June 3 Lancaster NY Lancaster ARC
 June 10 Akron OH Goodyear ARC
 July 8 Batavia NY Genesee RA
 July 8 Pittsburgh PA North Hills ARC
 Sept 8 Erie PA RAE
 HAM-O-RAMA COMPUTER FAIR
 Sept 9 Butler PA Butler Co ARC



Hamboree and Computerfest 1990

presented by the

Radio Association of Erie
Saturday, September 8
(The day before Butler)

*At Beautiful Rainbow Gardens in Erie
Adjacent to Presque Isle State Park*

Indoor Flea Market

Ample Free parking

VE Exams 10 a.m.

Electricity available

12-foot tables \$8.00 with multiple table discount

(Payment in advance)

1st Prize Icom IC-735 with PS55
2nd Prize IC-228H Mobile Rig
3rd Prize GC-5 World Clock

\$4.00 admission includes a main prize ticket

Separate drawing and tickets for
Rohn 25G – Complete 40-foot tower
AEA PK-232 MBX Data Controller
19" Color Remote Cable-Ready Television
ALL PRIZES WILL BE AWARDED

Admission – 8 a.m.

Set-up – 6 a.m.

Mobile checkin/prize

146.01/61

Information, advance tickets and tables

G.W. Alberstadt, KA3FZO

1901 Dutch Road

Fairview, Pa. 16415

814 474-3736

